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File No. 19

Serial Nos. 19

Later refe

MYSORE ECONOMIC CONFERENCE

SUBJECT.

a The development of Sericulture

(Report presented by Dr. Bilgrami W. Hon and his written evidence before the Industrial Commission on

G.R.S. III—3]

Routine Notes.

[To be used only for notes, requisitions, etc., not intended for permanent record.]

One copy each of Director W. India report presented to the Industries Commission & of his written evidence before the Commission on the development of Sericulture in Mysore are submitted, to the Secretary as directed

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M E M O .

1. 64. IN ORDER TO AID INDUSTRIAL DEVELOPMENT DO YOU RECOMMEND THE FORMATION OF ANY NEW IMPERIAL SCIENTIFIC AND TECHNICAL DEPARTMENTS? IF SO, FOR WHAT SUBJECTS OR NATURAL GROUPS OF SUBJECTS?

A good organisation is no less essential to the success of an enterprise than careful execution. The introduction of better and more hygienic methods in Indian Sericulture is an enterprise of great importance and difficulty on account of the extent of the country and the diversity of conditions over which the operations have to be carried on. It is necessary therefore that there should be a central agency which can control and connect these operations so as to bring them into conformity with a general and well considered scheme.

I am of opinion that the constitution of a special Department for sericulture would greatly help the rapid and systematic progress of the industry where favourable conditions exist.

It may perhaps be said that the main causes for the decline of sericulture are already sufficiently known, and that an elaborate programme of investigation directed to that end would probably be unnecessary. But the Department will have to eradicate the causes of past failure by educating people out of faulty practices sanctified by tradition, and persuade them to adopt modern methods with up-to-date appliances.

The quality of raw silk produced will have to be rendered mercantile by the employment of suitable machinery so as to avoid wastage of silk in reeling, and to enable Indian Silk to gain sooner or later its place in the world's market. Besides that the employment of a yarn of uniform denier would render possible a greater perfection in the manufacture of local fabrics.

One of the most important problems of the Department would, in

my opinion. be to determine by careful experiments of breeds of silkworm other than the local ones may in some places be recommended as more advantageous. There seems to be a mass of prejudice on the subject, probably the result of experiments conducted under conditions unfavourable to complete control. There is an unhealthy tendency to shun discussion. This is a subject which has to be approached with a frank spirit and an open mind.

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Q. 65. HOW SHOULD SUCH AN IMPERIAL DEPARTMENT BE CONSTITUTED AND RECRUITED?

I enclose a copy of my Scheme of Organisation of Sericultural Work in Mysore in the hope that it may be found to contain suggestions of a general nature, which may be useful in preparing scheme for other parts of India.

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Q. 110. WHAT SUGGESTIONS HAVE YOU TO MAKE FOR THE DEVELOPMENT OF AN INDUSTRY IN WHICH YOU HAVE BEEN ACTIVELY CONCERNED?

As a complement to the scheme I send

(1) Plans prepared by me for:-

(a) Rearing Schools and Rearing Houses,
(b) Stands and Trays.

(2) Forms for collecting statistics.

(3) A booklet of photographic pictures illustrating the difference between the traditional practices and the methods --- recommended by the Department.

" C o p y "

Secretary to Government,
Departments of
Education and Agriculture.

B.K.M.2

COLLECTION OF STATISTICS.

It has been said that statistics are useful for forming a correct view based on facts as to what has happened in the past for affording material for estimates of the present and for rendering possible a forecast for the near future.

The absence of reliable statistics of silk production in the State has been severly felt in organising measures to secure the prosperity of sericulture. It has therefore been considered very necessary that a correct record should be secured of the present condition of the industry in all its branches, as a starting point for the work of the Department and similar statistics collected in all subsequent years will afford a measure of the progress achieved from time to time and enable Government to see how far the energies and expenditure devoted to the subject have been justified byresult

While the forms employed omit nothing of importance in the existing state of the industry, they may have to be gradually amplified with its improvement. There is little doubt that the information rendered available will be of the highest value as a guide for future efforts at improvement. It would be possible to localise the industry to places where it can be most profitably practised an advice its abandonment where local conditions are unfavourable or where other occupations afford a better return for the resources employed. But even should the statistics serve no other purpose than that of furnishing a clear and unquestionable record of the the conditions of sericulture from year to year, the trouble of collecting and compiling them would be fully justified.

" C o p y "

Secretary to Government,
Departments of Education and Agriculture.

B.K.M.2

SCHEME OF ORGANISATION.

INTRODUCTORY. FROM THE EXPERIMENTS CONDUCTED BY ME IN 1914.

The first experiment in silk-worm rearing was conductedin 1914 with Italian and Mysore Breeds side by side. The Mysore Breed commenced to hatch on 1st March 1914 and spun cocoons on 30th idem. The number of cacoons obtained was nearly 19,000.

The hatching of the seeds received from Italy commenced on 9th, 10th and 11th March respectively according to the different varieties and spun cocoons on the 2nd, 3rd, 4th and 7th April re pectively. The total number of cocoons obtained was 18,000.

The second experiment. In the month of May the second experiment of Mysore and the first experiment of Bengal (Nistri) and of several cross breeds with Italian and Mysore varieties was commenced. One remarkable result achieved was that the cocoons of the cross breed were obtained from 5 to 7 days earlier than the pure Mysore.

The third experiment. The third crop was initiated on 31st May with Mysore and Bengal breeds and with cross breeds of Bengal and Mysore.

The cross breed between Bengal and Mysore did not produce any remarkable results and therefore it was abandoned altogether

The subsequent experiments were tried with only Mysore pure breed with the exception of a rearing conducted with Bilatipalu breed received from Pusa.

From some layings of Bilatipalu silk-worm eggs received from Pusa in November very few worms hatched, the hatching being very irregular and spreading over a long period. The shape and colour of the cocoons were similar to those of the European bree but the size and quality were much inferior to those produced in Channapatna with freshly imported Italian eggs. So in my annual report for 1914, I arrived at the following conclusion

It may be exotic breed, perhaps a European one, acclimatised and degenerated in India.

If the above conclusion is true this irregularity in hatching would prove once more the necessity of ~~hibernation~~ a methodical hibernation of the eggs of the European breeds.

Experiments in Chikmagalur and the Bababudan Hills.

After I returned to Italy in 1915, experiments of rearing were undertaken in Chikmagalur and on the Bababudan Hills, which are among the highest and coolest parts of the State.

The varieties tried were Mysore and Bengal pure breeds and a cross breed between Italian and Mysore. The seeds used were taken from the Channapatna Farm.

A comparative statement showing the weight of shells of cocoons for the different breeds of worms reared in 1914 in the Government Silk Farm at Channapatna and in 1915 in the Government Silk Farm at Chikmagalur is given below.

25 shells of the pure Mysore breed obtained in the first rearing weigh more than 1 8/10 drams = 2.15 grammes.

The number of cocoons for the different breeds giving the same weight are as detailed below:-

CHANNAPATNA FARM.

Breeds.	No. of cocoons
Pure Mysore 1st rearing.	25
do 2nd	21
do 3rd	21
do 4th	21
Italian (pure)	10
do	10½
do	11
Bilatipalu (Cocoons 5 Bilat = 8 Mys).	15½
Chinese Golden Yellow (3 Chi = 6 Mys)	12½
Chinese White (10 Chi = 14 Mys)	17½

Breed.	No. of coccons
Japanese	16½
Bengal (pure) 1st rearing.	30
do 2nd do	27
do 3rd do	22

CROSS BREED WITH MYSORE.

Italian	12
Chinese Gold Yel.(3 cross = 5 Mys)	14
Chinese White	14
Japanese	13

CHIKMAGALUR FARM.

Mysore (pure)	22
Bengal do	25
Cross breed (It and Mys)	14

N.B. 5 floss removed from Mysore cocoons are roughly equal in weight to a shell of the same breed of the 1st experiment.

INFERENCES.

From the above data we may infer that:-

(1) The improvement in the yield in silk in the Mysore breed between the first and the second experiments is more than 16% but after the second rearing no improvement was obtained in the same as far as the yield in silk is concerned.

(2) For the same number of cocoons the yield in silk from the Italian cocoons is double that of the improved Mysore cocoons.

(3) The number of seeds contained in the same weight of Italian and Mysore silk-worm breeds being in the ratio of 2 to 3 it results that for the same weight in seeds the Italian breeds yi 1/3 more silk than the improved Mysore breed, whilest the first rearing of Mysore pure breed would have yielded only 0.6 per ce of the Italian for the same weight of seeds.

N.B. Here it is to be remarked that the rearing of the Itali breeds took place during the hottest part of the year, under the most unfavourable conditions offered here fo European breeds, the temperature having reached up to 100 F.

(4). The difference in the yield of silk between Italian (pure) and cross breed (Italian with Mysore) cocoons is more than 12% for the same quantity of cocoons.

(5) The bengal breed has in three successive rearings conducted in Channapatna improved in the yield in silk by more than 26%.

(6) The rearing conducted in Chikmagalur and the Bababudan Hills, which are considered to be coolest parts of the State shows a demunuition in the yield in silk by 4.71% in the Mysore breed and by 13.63 % in the Bengal breed.

GRAINAGES.

Regarding this important institution, which is essential for the production of good seeds, there is a strong opinion curre in favour of having this situated on a high elevation. But from the preliminary attempts made in Chikmagalur and on the Bababudan Hills we could be led to believe that this opinion is not perfectly justified. Yet it may happen that new experiments conducted more methodically may change this conclusion. Still in the high elevations of the State the Mysore breed may not find the best conditions for its improvement on account of the dampness and other local conditions, for instance the sudden or much ~~accumulated~~ accentuated changes of temparature.

Therefore in my report to Government regarding my first tour of inspection to the Government Silk Farms I wrote as follows:-

The object of the visit to the Nandi Hills was to ascertain how far the oft expressed idea of starting a grainage there was feasible. It was thought that owing to its chill temperature the Nandi Hills would be ~~the~~ one of the few localities in the State where the local silk-worm breed could be much improved. But besides the fact that the possibility of improving the breeds is

not without limit, the temperature on the hills seems not to be sufficiently low as to show a very appreciable influence; whilst on the other hand temparature is not a sufficient condition for achieving the end. Moreover the space on the sumit of the hill is too limited for anything more extensive than laboratory experiments and certainly affords no scope for an industrial undertaking.

I went to the Bababudan Hills for inspecting a mulberry garde there which I found in a very good condition and which demonstrates that there also mulberry could be conveniently grown; only the climatic conditions may render the rearing of worms more difficult than in other parts of the State on account of the dampness which I hear to be very excessive in the rainy season. Yet, I think with due precautions successful results may perhaps be obtained also during the rainy season. If so, this place by its greater extent, offers better facilities for improving the Mysore breed on a commercial scale, than the Nandi Hills, if a real and appreciable improvement of the local breeds may be expected from the coolest temperature than can be found in the State.

For sericulture, mulberry cultivation is not all that is wanted the main point is the rearing of silk-worm, but unfortunately ll the conditions fit for growing mulberry are not always sufficient for rearing silk-worms conveniently. Then if it may be ffirmed in a general way that in all parts ofthe Mysore State ulberry cultivation can be successfully tried, it is not to be elieved that also silk-worm rearing will be paying everywhere; nd moreover when a silk-worm crop fails, the rearers lose not nly the crop of leaves but also the expenses and the labour of earing.

So that where the conditions are not quite fit, where the emperature is very high and where a scarcity of labour is felt, t is better not to substitute sericulture for the production hich give already good profits. Therefore in introducing ---

sericulture in new places it is necessary to proceed with the greatest caution, and not to create unseasonable enthusiasm among the raiyats before conducting conclusive experiments, otherwise the ryots can be bitterly deluded and may lose condifence in al new enterprises proposed to them.

REELING.

At present reeling cannot be undertaken in the improved methods as the machinery cannot be had from Europe as it is clearly shown in the following translation of the letter of Mr. Battaglia, the well known Italian constructor of reeling machiner addressed to me.

"However sorry I may be, to be compelled myself to suggest the postponment till more propitious times, of the carrying out of the first industrial installation, especially in view of the risk that in the mean time the resolution to start it may itself vanish, I can see no possible way of arranging for a supply (of the machinery).

Even apart from the rigorous prohibition of exports the conditions of the market for metals are such as to render impossible the manufacture of any implements unconnected with -- munitions of war. All metals have been requisitioned (by Government) and workmen exempted (from military service) cannot be employed on any work excepted that connected with the war. Under such conditions it is impossible to undertake work of any sort. If you kindly read my letter to our friend Dr. Gorio, you will agree with me that it would be nothing less than frivolous to raise hopes that machinery can be supplied.

We are compelled to postpone the fulfilment of sericultural design, from which we hoped that our studies would be crowned with success, now that all our efforts have to be concentrated on the attainment of victory. It is well that out country which is poor in metals prohibits the diversion of the smallest scrap from the manufacture of munitions. As the Great War is essentially fought

with metallic energy we must redouble our efforts to overcome out natural deficiency.

The chief point in the letter written by Mr. Battaglia to Dr. Gorio is the follcwing:- To purchase a second hand plant would be to sacrifice the advantages of our study of local -- conditions, which we made with the object of introducing special features to suit those conditions.

A plant in sound condition cannot be had now, and I would never think of sending over to Mysore machinery which is practically not worth the cost and trouble of transport.

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I would like to express my views on some points raised in a note on sericulture received by the Mysore Government.

Among others it is said: (1) CONSIDERING THE APPLIANCES THE REELING IS GOOD. - If it is true for some reelers, it cannot be taken in a general sense. (2) IT WOULD BE USELESS TO REEL FINE SILK ON AN ITALIAN REEL AND HAVE NO SALE FOR IT: IT HASBEEN THE EXPERIENCE IN NORTH INDIA.- As far as I have been in December 1913 in the Government Filature Srinagar and Jammu, and as far as I learnt from the descriptions and illustations contained in the Bulletin No.39 of the Agricultural Research Institute of Pusa concerning the method of silk-reeling in Bengal, in both these places which I believe to be the most important centres for sericulture in India, not only there are not in use improved Italian or in general European reeling apparatuses, but not even those of the ancient pattern.

(3) I AM NOT AT ALL SANGUINE OF THE SUCCESS OF THE FILATURE IN WHICH FINE QUALITIES ARE PRODUCED.

I believe, and the example of China and Japan confirms my belief, that whenever a more perfect product is brought into the market, it finds easier and more convenient sale. I do not

know if India may be an exception, but I suppose that Indian Silk when rendered as good in quality as that produced in the most advanced sericultural centres cannot fail to compete in the world market, perhaps with advantage, as the wages paid here for reeling seems to be much lower than in some other parts.

Yet it is doubtful that such a result may be achieved even with the employment of perfected means if this industry is maintained essentially in the cottage stage.

" C o p y "

Secretary to Government,
Departments of Education and Agriculture.